

EXHIBIT CC



Liang Xu

**Liang Xu**

Software Engineer, Facebook

San Francisco Bay Area · 268 connections

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About

Interested in software engineering, security analysis, and mobile application development.

Specialties:

- * Primary programming language: Java/C++
- * Security and vulnerability analysis
- * Experiences with mobile app and Web development

Experience

**Software Engineer**

Facebook

Mar 2020 - Present · 2 years 4 months

**Software Engineer**

Calibra

Oct 2018 - Mar 2020 · 1 year 6 months

**Software Engineer**

Instagram

Oct 2015 - Sep 2018 · 3 years

Growing the Instagram community from 400 million to 1 billion.

**Software Engineer**

Pandora

Nov 2013 - Sep 2015 · 1 year 11 months

Delivering great music discovery and listening experience with Pandora on the Android platform.

**Graduate Student Researcher**

UC Davis

Sep 2007 - Jun 2013 · 5 years 10 months

Davis, CA

- * Developed a static analysis framework that automatically tracks the flow of privacy-sensitive information in Android applications. Analyzed a large collection of more than 122K unique Android applications from Google Play. Detected massive leaks of sensitive phone state and location data through the system log and network. Manually verified reported flows from top applications through reverse-engineering and examining disassembled smali code.

- * Conducted a large-scale, systematic study of over 122K third-party Android applications from Google Play. Extensively examined unique aspects of Android applications (manifest files, permission usage, and application bytecode). Uncovered and discussed common development errors and pitfalls. Detected security vulnerabilities in a few popular Android applications. Provided actionable recommendations where applicable.

- * Analyzed popular open source Web applications to detect security vulnerabilities. Found access control vulnerabilities in 7 PHP Web applications that allow privileged access without proper authorization. Discovered logic vulnerabilities in 12 payment modules (including Paypal) from osCommerce that allow shopping online without proper payment.

- * Introduced a novel and practical approach to extract precise control flow information from binaries. Proposed forced execution, which systematically directs the program execution to explore both branches of each conditional, for CFG (Control Flow Graph) construction. Implemented prototype based on QEMU and evaluated it on the Siemens Test Suite and SPEC benchmarks.

- * Designed and implemented a dynamic cross-view based approach to detect kernel rootkits by identifying hidden processes. Instantiated the VMI (Virtual Machine Introspection) technique to reconstruct high-level process information from the low-level VMM (Virtual Machine Monitor). Evaluated effectiveness on real rootkits.

Show less

Education



Liang Xu



2007 - 2013

Advisor: Zhendong Su

Dissertation: Techniques and Tools for Analyzing and Understanding Android Applications

**Wuhan University**

Master of Science (MS) · Information Security

2005 - 2007

Advisor: Huanguo Zhang

**Wuhan University**

Bachelor of Science (BS) · Information Security

2001 - 2005

Projects

Apex Launcher (for Android)

Mar 2012 - Aug 2018

- * Created and co-developed a highly customizable launcher application (based on AOSP).
- * Implemented various features including a powerful theme engine, notification system, and extended widget functionality.
- * More than 27 million unique user downloads on Google Play.
- * Voted one of five best Android launchers by Lifehacker.
- * Also featured in Android Police, Computerworld, Droid Life, MakeUseOf, PCMag, Pocket Now, Talk Android, and ZDNet.

Other creators

[See project](#)

Calligraphr

Jun 2014

Calligraphr is a Google Glass Hackathon project that won us the first prize.

We use augmented reality to project an interactive character animation on a piece of paper. Students can use traditional brush and ink to trace down the character stroke by stroke. Once finished, our app can automatically judge the work and give a score. Like games, characters are organized by difficulty levels. Users can start with simple characters and proceed to further levels.

Other creators



Fancy Widgets (for Android)

May 2010 - Apr 2014

- * Created and led the development of a highly customizable widget application.
- * Independently developed the first two major releases and integrated APIs from multiple weather providers (e.g., AccuWeather, WeatherBug).
- * More than 6 million unique user downloads on Google Play.
- * Featured as Amazon Free App of the Day (Apr. 24, 2011).
- * Also featured in Android Central, AndroidHeadlines, MakeUseOf, TechRadar, and ZDNet.

Other creators

[See project](#)

Easy Share (for Android)

Mar 2010 - Jan 2011

- * Developed a useful application that offers users various methods (emails, QR Codes, etc.) to share resources (apps, contacts, location, etc.) on Android smartphones.
- * Integrated QR Code generation based on the ZXing barcode image processing library.

[See project](#)

CSSA @ UC Davis

Jun 2009

Designed and developed the website for the Chinese Students and Scholars Association (CSSA) at UC Davis. (PHP, MySQL)

[See project](#)

Honors & Awards

USENIX Student Travel Grant

-
Aug 2011

Block Grant Fellowship

-
Sep 2007

Scholarship and Outstanding Student

-
2004